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ABSTRACT

This paper, in exploring the context for liberal education and the ideas of John Dewey, illustrates the difference between training and inquiry and offers ideas about how the two depend on each other in practice. The paper describes proficiency as a direct result of quality training, which establishes routinized habits. This discussion also explores the limits of such habits when habits from training become unequal to the demands of a particular situation. Here, the paper argues, an education in inquiry allows for departure from training to respond to new circumstances. Further, the paper argues, the strategies of both training and inquiry are necessary to the kind of understanding of education that Dewey tried to illustrate in his works. The paper goes on to illustrate how debates on the correct way to combine these two approaches to pedagogy have, in the past, and in recent times, been framed. In concluding, the paper advocates not a dominance of one approach over the other nor a synthesis of the two but a continual, progressive, dynamic cycling between the two pedagogies. The difficulty of working with and understanding both approaches lies in opening oneself to the paradox inherent in the attempt to understand. Contains 19 references. (JB)

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Inquiry vs. Training: Reframing the Context of a Liberal Education

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> The history of educational theory is marked by opposition between the idea that education is development from within and that it is formation from without; that it is based upon natural endowments and that education is a process of overcoming natural inclination and substituting in its place habits acquired under external pressure (Dewey 1938 p.17).

Both sides of Dewey's debate have their supporters today, as well they should. Each side of the dialectic alone offers a necessary, but not sufficient foundation for understanding and practicing education in America's classrooms. Some suggest that the two theories of knowledge mentioned by Dewey - that of education from within which I call inquiry, and education from without which I call training - are not the perennial adversaries that some imagine them to be. Today, I suggest that what we perceive as two contrasting, often conflicting pedagogies, can be more accurately seen as two nearly identical but opposite versions of the same educational process. Through examples and references to relevant literature, I will illustrate the difference between training and education, offer ideas about how the two depend on each other in practice, and leave it to you to decide on what William James would call the "cash value" of these ideas.

Training:

When we seek medical treatment, we expect a great deal. We expect an equal balance between the practitioner's openness to consider the idiosyncrasies of our particular injury, and we expect proficiency in the universally accepted protocols of the medical

trade. The finest doctors, nurses and paramedics in practice seem to understand both the import and relative rarity of achieving this balance. On one side of the balance is proficiency, which I argue is a direct result of quality training. Even as medical laymen, we can still sense proficiency in subtle ways because the basis of proficiency, quality training, transcends the boundaries of any one discipline. In one sense, the results of good training appear in the same form, whether the training happens to be in medicine, aeronautics, law, or as I shall ultimately argue, teaching.

For example, conjure up an image of a nurse utterly engaged in the sequence of drawing and separating blood for testing. As you watch, you see her plan every motion mentally just before proceeding. You understand that every hesitation is occupied with contemplation and the making of a decision. Which size catheter to use? Which vein to attempt? Which stickers should mark the different tubes that go to four different labs? Even though there may be no prolonged hesitation, no call for assistance, and not a single minor mistake in the entire procedure, some may not feel as comfortable, as assured of the nurse's training as they could be. Some patients will no doubt compliment the nurse for her focused, conscious attention to even such a routine procedure. Others however, will rightly question whether the nurse consciously focuses so hard because she wants to, or because she has to.

Now imagine a nurse who completes the same task just as efficiently, just as correctly, with no waste of time or effort, who is at

the same time consciously engaged in something else, such as obtaining past medical history or explaining your upcoming X-ray procedure. While your attention is focused on answering insightful, well-tailored questions about past injuries, you also notice that blood has been drawn, divided and labeled for lab analysis. In this case, the two separate trains of thought - one routine and standardized, the other individualized and peculiar to your case - have been carried out almost as if by two different people, a well-trained venipuncturist, and a consciously attentive nurse.

Both nurses perform their duty up to standard. Both spend every minute tending medically to their patients. Yet there is a difference between the two, I would argue an enormous one. The first nurse draws blood consciously, the second, automatically. The first nurse must think deliberately about every step in the relatively routine practice of drawing and separating blood, fully engaging her conscious mind in the process. The latter nurse, having once identified a blood test as an appropriate routine or habit to perform, does it unconsciously, habitually, leaving her conscious mind free to sense other problems, and chose appropriate habits with which to address them. By this, I do not imply that the best nurses are robots, mere human receptacles of countless medical protocols, clueless of how to critically analyze complex, unprecedented problems. Rather, it is that of the countless tasks that require their attention, the finer nurses decide consciously which of these jobs can be handled by previously trained habits, and which require creative solutions. The less seasoned nurses, choosing to answer every demand with their

undivided conscious attention will excel in some respects. But, they will eventually either learn to delegate a fair portion of their tasks to well-worn habit, or inevitably suffer symptoms of what such professionals call "burn-out."[1]

Similarly, managers unable to accept the need to train of certain routine behaviors such as scheduling meetings or attending business luncheons, will fail to reserve enough conscious attention to excel at more complex matters. Teachers unable to divert basic classroom management skills and set procedures such as operating a microscope to unconscious thought, will also burden themselves unnecessarily. This ability to learn selected routines beyond the point requiring conscious thought is called "Automaticity" (Bloom 1986). It is the single most valuable outcome from a course of training, and as I hope you will agree, half of what separates the adequate practitioners from consummate professionals in any field.

> The learner must come to do with one stroke of attention what now requires half a dozen, and presently in one still more inclusive stroke, what now requires thirty-six. He must systematize the work to be done and must acquire a system of automatic habits corresponding to the system of tasks. When he has done this, he is master of the situation in his [occupational or professional] field. . .Finally, his whole array of habits is swiftly obedient to serve in the solution of new problems (Bloom 1986 p.72).

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[1] William James claimed that, " Ninety-nine hundreths or, possibly, nine hundred ninety-nine thousandths of our activity is purely automatic and habitual, from our rising in the morning to our lying down each night" (1899 p.65).

But as mentioned above, training - even that polished to the point of automaticity - is a necessary, but not sufficient prerequisite to grasp the pedagogical balance after which Dewey sought. We now have a slightly clearer grasp of the process of, "overcoming natural inclination and substituting in its place habits acquired under external pressure" (Dewey 1938 p.17). Yet the progress so far begs the next logically ensuing question. What mental agencies invent, alter and occasionally abolish the protocols which we, in training, form into automatic habits? What happens when an automatic course of action which we have depended on for some time, turns stale, obsolescent and eventually malignant to our designs? In his book, "Education and the Human Quest," Herbert A. Thelen suggests, "People engage in problem-solving or "conflict resolution" through two basic and natural processes: one is automatic and reflexive. . . the other is inquiry" (Thelen 1972 pp.22-3). While the concept of training is a relatively easy target for discussion because of its clearly discernible nature, the other half of Dewey's pedagogical balance, inquiry, is a slightly more difficult concept to capture.

Inquiry:

Years ago, an almost unknown foreign physiologist had commenced a series of experiments related to animal digestive processes. As is the case with most long-term experiments, many of the daily indignities such as restocking supplies and cleaning cages had become routine. This occurred for natural, not for experimental reasons, for these tasks were quite far removed from the chosen experimental variables. The daily duties merely became habituated,

automatized, and relegated to mostly unconscious attention, leaving the conscious mind of the experimenter free to ponder the variables which were under observation. After he had run the experiment long enough to habituate the procedure with which he fed his animals, he noticed an anomaly, an element not accounted for at all in his deliberately well-automatized experimental procedures.

Within a certain time window every day, the physiologist or his assistant would feed the dogs enlisted as experimental subjects according to procedures practiced since the start of the experiment. But he noted, in what has become his classic study, that the dogs seemed to salivate in anticipation of their dinner sometimes without ever physically being able to sense their food. The dogs "knew" dinner was coming from the other conditioned clues such as the arrival of the assistant within a certain broad time window (Biehler et al 1991 p.324).

Our focus here is not the well-known research that eventually became known as classical conditioning, but rather Pavlov's own passage into, and more importantly out of, the routines he set for himself during the experiment. The nurse described earlier demonstrated one facet of successful education by relegating a routine protocol, in this case drawing blood, through constant practice, to the unconscious realm of automatic processing or automaticity. In this case, Pavlov's choice to jump out of the routines in his experiment to investigate what was originally clearly not an experimental variable, represents the second part of Dewey's

pedagogical duality, his "education from within," or what we may refer to as inquiry.

> Inquiry, as presented here, signifies that intellectual process by which people, when confronted with a problem, puzzling phenomenon, or discrepancy for which they cannot immediately account, generate and test ideas they find personally useful to explain the phenomena and to predict consequences of similar circumstances (McCollum 1978 p.i).

That description seems to fit because it was indeed such a discrepancy that seduced Pavlov out of the rigid routines of his physiology experiment and into the open-ended inquiry about what finally became classical conditioning. Had he not noticed that particular quirk, he would doubtless have continued on with the experiment until one of two things happened. Either the dog's pre-feeding salivation would have grown to the point where Pavlov would have been forced to regard it with some significance, or he would have completed the experiment and thus ceased performing the experimental routines altogether. In short, Pavlov was faced with a choice well-known to each of us, especially in the realm of education. Should we continue adhering to a habituated routine despite its increasing obsolescence, or should we consciously deconstruct the routine to examine, alter or abolish it?

Clearly, Pavlov could have dismissed the thought of the dog's pre-feeding salivation as a phenomena outside the realm of his habituated experimental routines, and thus undeserving of his attention. Most experimental studies depend on just such devotion

to routine and observation of only certain pre-selected variables. While we must certainly respect the advances brought to us by such scrupulous observance of scientific training, we must also appreciate the less publicized, but no less factual advances made by unprecedented dismissal of set routine in favor of spontaneous inquiry. Without such inquiry, Alexander Fleming would have discarded the mold that he eventually cultivated into penicillin. The Curies would have also dismissed the eerie image found on a photographic plate which ultimately led them to radioactivity. Clearly, Dewey was not completely unfounded when he said, "It does not pay to tether one's thoughts to the post of use with too short a rope" (Dewey 1910).

Synthesis:

It seems clear that the strategies of both training and inquiry are indeed necessary to the kind of understanding of education that Dewey tried to illustrate in his works. Whether the two strategies alone are sufficient for a realistic pedagogy remains yet to be seen. We can hardly offer "proof" of an argument rooted as deeply in abstract soil as this. But we can build upon the understanding of training and inquiry we have just constructed. We can further expose some unfortunate examples of what happens when the two do not balance well together. Finally, we can offer some possibilities for a workable pedagogy based on the rare and encouraging times when they do.

While the two strategies of training and inquiry are both essential ingredients in a healthy pedagogy, one of our natural inclinations is to mix them artificially and expect the best of both worlds. This is an instinct we should scrupulously avoid. In fact, seasoned teachers often make deliberate attempts to free one type of learning from the other in accordance with William James' caveat of years ago: "It is quite literally impossible to have an experience and simultaneously examine that experience" (Stagner 1988 p.124). In fact, the popular technique of "Brainstorming" has as one of its few rules the absolute exclusion of any realistic or evaluative criticism during the phase of pure idea generation or inquiry (Osborn 1963). Brainstorming which does *not* actively try to separate the inquiry-based generation of ideas and the training-based evaluation of them is very commonly a failure precisely because the two strategies interfere with each other so dramatically.

Similarly, attempts to artificially inject the strategy of inquiry into an otherwise training-based session has equally unfortunate consequences. While we must use the strategy of conscious inquiry to deconstruct an unconscious habit in order to improve it, we cannot expect proficiency in that habit to remain high while it is under our conscious examination. To do so would be as difficult as updating the code of a computer program while that program is still running. Yet this perhaps the most common mistake made by well-meaning teachers who too often try to achieve the balance between the two opposites by mixing half of one with half of the other and moving on.

> Some processes, especially in sports and cognitive fields, are done so *rapidly* under automatic control that the same individual could not even come close to this rate under conscious control (Bloom 1986 p.75).

The second and perhaps more popular mistake made in using the strategies of training and inquiry is to subordinate one to the other indefinitely. It is no secret that one of the most heated debates currently underway in schools of education is a not too distant descendant of that same struggle Dewey illustrated in 1938. While it is essentially an argument over theory, the long-term implications for the practical working classroom are enormous. At one extreme are "objectivists" who subordinate the creation of personally relevant knowledge to culturally habituated patterns. They view inquiry-based pedagogy as dependent upon training-based pedagogy. They count under their banner scholars such as Rudolf Flesch, Allan Bloom and of course E.D. Hirsch with his offering of "Cultural Literacy" (Hirsch 1987). At the other extreme are "constructivists," who subordinate more traditionally habituated knowledge to the ongoing social construction of knowledge (Yarusso 1992 p.7). To them, the process of inquiry outranks the process of training. Among the constructivists are thinkers such as Robert Garmston, J.G. & M.G. Brooks and Jerome Bruner with his "Discovery Learning" (Bruner 1962 ch.5).

When we frame the debate in terms of constructivism and objectivism, we wind up with a philosophical stalemate. We have the proverbial unstoppable force pitted against the immovable object, a

caricature to which the academic press often concedes (Jonassen 1991; Yarusso 1992). While we cannot ignore the opposition between the two, we can reframe the context of the debate, and with any luck, watch it begin to evaporate of its own volition. We can instead discuss training and inquiry, the dynamic concepts underlying the more static "-isms" that Dewey wanted so desperately to avoid. When we see training as the movement from conscious thought process to automatized habit, and inquiry as the movement from automatized habit to conscious thought, we realize that the two terms describe a single process moving forward and backward. To combine bits of each one in a single lesson at the same time would be like trying to make ice and steam simultaneously out of the same cup of water. To fight for the dominance of one over the other would be to fight for the dominance of night over day or vice versa. However, if we seek not a static balance or permanent synthesis of the two, but rather a continual, progressive, dynamic cycling between the two pedagogies, not unlike the changing of seasons, we may grow to understand more what makes the great educators of our school systems so rare.

I don't doubt that this suggestion has been made countless times before, by minds far more nimble than mine. Yet if that is the case, why do our scholars, teachers, students and lay people more often than not, cock their eyebrow in criticism of current classroom pedagogies? Again, Dewey suggests an answer. "For any theory and set of practices is dogmatic which is not based upon critical examination of its own underlying principles" (Dewey 1938 p.22).

What results when we apply the strategies of training and inquiry to our own present attempt to grasp the very same pedagogies? I dare say, Gödel, Escher and Bach would all be proud of such a knot. Indeed, were I able to leave you with such a complete and thorough appreciation for the delicate, dynamic balance between inquiry and training solely from this one presentation, I would have proven myself to be self-contradicting. That is, in this almost totally inquiry-based atmosphere of a professional meeting, one can only hope to describe the conscious, theoretical facets of the inquiry-training balance, leaving the unconscious understanding, what Donald Schön called "knowledge-in-action," for another venue (Schön 1983). The dynamic balance is not an easy one to reach either in theory or in practice. Yet I believe that the educational vision inferred by so many, including Dewey, depends upon it. The difficulty lies not in subordinating training to inquiry or vice versa, nor in simultaneously engaging both. The difficulty lies in opening oneself to the paradox inherent in the attempt to understand - a paradox that like so many others, offers both endless contradiction and the chance to advance our educational insight not just in degree but in kind. Perhaps this unknown author said it best when he said, "Training gets us to do things right, but education [inquiry] gets us to do right things."

Jake Mazulewicz
10 October 1994

References

Bernstein, R. *Beyond Objectivism and Relativism: Science, Hermeneutics and Praxis.* Philadelphia: University of Philadelphia Press. 1985.

Biehler, Robert F. and Jack Snowman. *Psychology Applied to Teaching.* Boston, MA: Houghton Mifflin Co. 1993.

Bloom, Benjamin. "Automaticity: The Hands and Feet of Genius." in *Educational Leadership.* v43: February 1986. pp.70-77.

Bruner, Jerome. *On Knowing: Essays for the Left Hand.* Cambridge, MA: Harvard University Press. 1979.

Dewey, John. *How We Think.* Boston, MA: D.C. Heath & Co. 1910.

Dewey, John. *Experience and Education.* New York: Collier Books. 1938.

Hirsch, E.D. *Cultural Literacy: What Every American Needs to Know.* Boston, MA: Houghton Mifflin. 1987.

James, William. *Talks to Teachers on Psychology.* New York: Henry Holt and Co. 1899.

Jonassen, David H. "Objectivism vs. Constructivism: Do we need a new philosophical paradigm?" in *Educational Technology and Research Development.* v39, no3: 1991. pp.5-14.

McCollum, John A. *Ah Hah! The Inquiry Process of Generating and Testing Knowledge.* Santa Monica, CA: Goodyear Publishing Co. 1978.

Osborn, Alexander Faickney. *Applied Imagination; Principles and Procedures of Creative Problem-Solving.* New York: Scribner. 1963.

Schön, Donald A. *The Reflective Practitioner: How Professionals Think in Action.* New York: Basic Books. 1983.

Stagner, Ross. *A History of Psychological Theories.* New York: MacMillan Publishers. 1988.

Thelen, Herbert A. *Education and the Human Quest.* Chicago, IL: University of Chicago Press. 1972.

Yarusso, Lowell. "Constructivism vs. Objectivism." in *Performance and Instruction.* April 1992. pp.7-10.

Related Readings

Berger, Peter L. and Thomas Luckmann. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge.* New York: Doubleday. 1966. Broad-based scholars of sociology suggest that "reality" as we know it is nothing more than an ever-evolving web of socially defined agreements. Good for how we get into and out of social "institutions." The most academic book of the bunch.

Carse, James P. *Finite and Infinite Games: A Vision of Life as Play and Possibility.* New York: Ballantine Books. 1986. More narrative, almost poetic than academic. There are two kinds of games, finite and infinite. Finite players play within boundaries. Infinite players play with boundaries. The two are interrelated, yet opposite; inseparable, but infinitely different. It can't all be this simple, or can it?

Pirsig, Robert M. *Zen and the Art of Motorcycle Maintenance.* New York: Bantam Books. 1974. Creative, readable yet sometimes deeply intellectual musings on most the major philosophical quandaries facing folks since Socrates, all cleverly disguised as a simple tale about a man's motorbike ride through the midwest with his son. THE book for the small "p" philosopher in all of us. *Lila* is the excellent sequel.

Von Oech, Roger. *A Whack on the Side of the Head.* Menlo Park, CA: Creative Think. 1983. A very practical collection of suggestions, techniques and explanations concerning the creative thinking process, mostly in business and at home. Irreverent. Illustrated with endless examples and vignettes. Offers wide selection of references, some scholarly.

Also try these, probably two of the more famous and popular "conversation" films:

- "My Dinner with André." Two New York playwrights meet for dinner and share thoughts and tall tales - one of a life well-lived, the other a life wanting to be lived.

- "Mindwalk." Three friends spend a day touring exquisite Mont St. Michel and speak of New Science and what it means about the way we see our reality. Basically Quantum Physics for poets. Mathless, user-friendly, yet classy and not condescending.